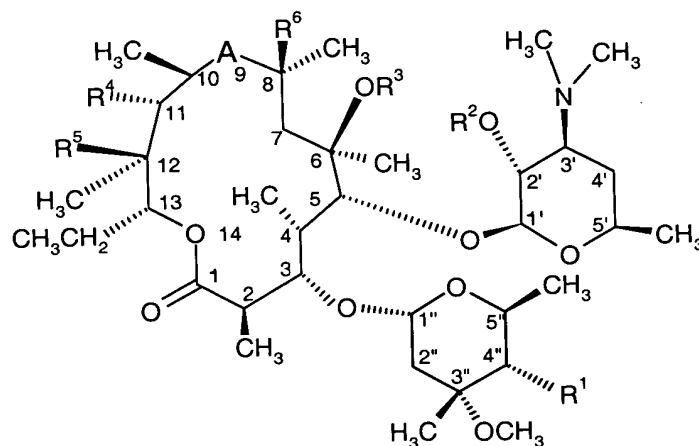


# Amendments to the claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original): A compound of formula (I)



(I)

wherein

A is a bivalent radical selected from  $-C(O)-$ ,  $-C(O)NH-$ ,  $-NHC(O)-$ ,  $-N(R^7)-CH_2-$ ,  $-CH_2-N(R^7)-$ ,  $-CH(NR^8R^9)-$  and  $-C(=NR^{10})-$ ;

$R^1$  is  $-OC(O)(CH_2)_dXR^{11}$ ;

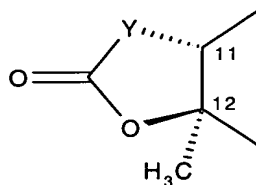
$R^2$  is hydrogen or a hydroxyl protecting group;

$R^3$  is hydrogen,  $C_{1-4}$ alkyl, or  $C_{3-6}$ alkenyl optionally substituted by 9 to 10 membered fused bicyclic heteroaryl;

$R^4$  is hydroxy,  $C_{3-6}$ alkenyloxy optionally substituted by 9 to 10 membered fused bicyclic heteroaryl, or  $C_{1-6}$ alkoxy optionally substituted by  $C_{1-6}$ alkoxy or  $-O(CH_2)_eNR^7R^{12}$ ,

$R^5$  is hydroxy, or

$R^4$  and  $R^5$  taken together with the intervening atoms form a cyclic group having the following structure:



wherein Y is a bivalent radical selected from  $-\text{CH}_2-$ ,  $-\text{CH}(\text{CN})-$ ,  $-\text{O}-$ ,  $-\text{N}(\text{R}^{13})-$  and  $-\text{CH}(\text{SR}^{13})-$ ;

$\text{R}^6$  is hydrogen or fluorine;

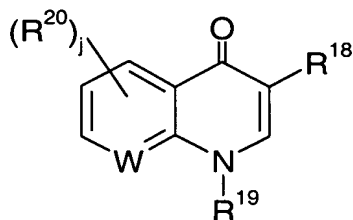
$\text{R}^7$  is hydrogen or  $\text{C}_{1-6}$ alkyl;

$\text{R}^8$  and  $\text{R}^9$  are each independently hydrogen,  $\text{C}_{1-6}$ alkyl,  $-\text{C}(=\text{NR}^{10})\text{NR}^{14}\text{R}^{15}$  or  $-\text{C}(\text{O})\text{R}^{14}$ , or

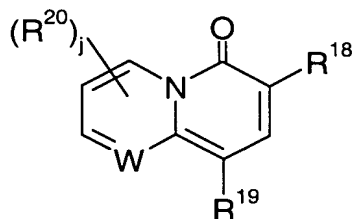
$\text{R}^8$  and  $\text{R}^9$  together form  $=\text{CH}(\text{CR}^{14}\text{R}^{15})_{\text{aryl}}$ ,  $=\text{CH}(\text{CR}^{14}\text{R}^{15})_{\text{heterocyclyl}}$ ,  $=\text{CR}^{14}\text{R}^{15}$  or  $=\text{C}(\text{R}^{14})\text{C}(\text{O})\text{OR}^{14}$ , wherein the alkyl, aryl and heterocyclyl groups are optionally substituted by up to three groups independently selected from  $\text{R}^{16}$ ;

$\text{R}^{10}$  is  $-\text{OR}^{17}$ ,  $\text{C}_{1-6}$ alkyl,  $-(\text{CH}_2)_g\text{aryl}$ ,  $-(\text{CH}_2)_g\text{heterocyclyl}$  or  $-(\text{CH}_2)_h\text{O}(\text{CH}_2)_i\text{OR}^{17}$ , wherein each  $\text{R}^{10}$  group is optionally substituted by up to three groups independently selected from  $\text{R}^{16}$ ;

$\text{R}^{11}$  is a heterocyclic group having the following structure:



or



$\text{R}^{12}$  is hydrogen or  $\text{C}_{1-6}$ alkyl;

R<sup>13</sup> is hydrogen or C<sub>1-4</sub>alkyl optionally substituted by a group selected from optionally substituted phenyl, optionally substituted 5 or 6 membered heteroaryl and optionally substituted 9 to 10 membered fused bicyclic heteroaryl;

R<sup>14</sup> and R<sup>15</sup> are each independently hydrogen or C<sub>1-6</sub>alkyl;

R<sup>16</sup> is halogen, cyano, nitro, trifluoromethyl, azido, -C(O)R<sup>21</sup>, -C(O)OR<sup>21</sup>, -OC(O)R<sup>21</sup>, -OC(O)OR<sup>21</sup>, -NR<sup>22</sup>C(O)R<sup>23</sup>, -C(O)NR<sup>22</sup>R<sup>23</sup>, -NR<sup>22</sup>R<sup>23</sup>, hydroxy, C<sub>1-6</sub>alkyl, -S(O)<sub>k</sub>C<sub>1-6</sub>alkyl, C<sub>1-6</sub>alkoxy, -(CH<sub>2</sub>)<sub>m</sub>aryl or -(CH<sub>2</sub>)<sub>m</sub>heteroaryl, wherein the alkoxy group is optionally substituted by up to three groups independently selected from -NR<sup>14</sup>R<sup>15</sup>, halogen and -OR<sup>14</sup>, and the aryl and heteroaryl groups are optionally substituted by up to five groups independently selected from halogen, cyano, nitro, trifluoromethyl, azido, -C(O)R<sup>24</sup>, -C(O)OR<sup>24</sup>, -OC(O)OR<sup>24</sup>, -NR<sup>25</sup>C(O)R<sup>26</sup>, -C(O)NR<sup>25</sup>R<sup>26</sup>, -NR<sup>25</sup>R<sup>26</sup>, hydroxy, C<sub>1-6</sub>alkyl and C<sub>1-6</sub>alkoxy;

R<sup>17</sup> is hydrogen, C<sub>1-6</sub>alkyl, C<sub>3-7</sub>cycloalkyl, C<sub>3-6</sub>alkenyl or a 5 or 6 membered heterocyclic group, wherein the alkyl, cycloalkyl, alkenyl and heterocyclic groups are optionally substituted by up to three substituents independently selected from optionally substituted 5 or 6 membered heterocyclic group, optionally substituted 5 or 6 membered heteroaryl, -OR<sup>27</sup>, -S(O)<sub>n</sub>R<sup>27</sup>, -NR<sup>27</sup>R<sup>28</sup>, -CONR<sup>27</sup>R<sup>28</sup>, halogen and cyano;

R<sup>18</sup> is hydrogen, -C(O)OR<sup>29</sup>, -C(O)NHR<sup>29</sup>, -C(O)CH<sub>2</sub>NO<sub>2</sub> or -C(O)CH<sub>2</sub>SO<sub>2</sub>R<sup>7</sup>;

R<sup>19</sup> is hydrogen, C<sub>1-4</sub>alkyl optionally substituted by hydroxy or C<sub>1-4</sub>alkoxy, C<sub>3-7</sub>cycloalkyl, or optionally substituted phenyl or benzyl;

R<sup>20</sup> is halogen, C<sub>1-4</sub>alkyl, C<sub>1-4</sub>thioalkyl, C<sub>1-4</sub>alkoxy, -NH<sub>2</sub>, -NH(C<sub>1-4</sub>alkyl) or -N(C<sub>1-4</sub>alkyl)<sub>2</sub>;

R<sup>21</sup> is hydrogen, C<sub>1-10</sub>alkyl, -(CH<sub>2</sub>)<sub>p</sub>aryl or -(CH<sub>2</sub>)<sub>p</sub>heteroaryl;

R<sup>22</sup> and R<sup>23</sup> are each independently hydrogen, -OR<sup>14</sup>, C<sub>1-6</sub>alkyl, -(CH<sub>2</sub>)<sub>q</sub>aryl or -(CH<sub>2</sub>)<sub>q</sub>heterocyclyl;

R<sup>24</sup> is hydrogen, C<sub>1-10</sub>alkyl, -(CH<sub>2</sub>)<sub>r</sub>aryl or -(CH<sub>2</sub>)<sub>r</sub>heteroaryl;

R<sup>25</sup> and R<sup>26</sup> are each independently hydrogen, -OR<sup>14</sup>, C<sub>1-6</sub>alkyl, -(CH<sub>2</sub>)<sub>s</sub>aryl or -(CH<sub>2</sub>)<sub>s</sub>heterocyclyl;

R<sup>27</sup> and R<sup>28</sup> are each independently hydrogen, C<sub>1-4</sub>alkyl or C<sub>1-4</sub>alkoxyC<sub>1-4</sub>alkyl;

R<sup>29</sup> is hydrogen,  
C<sub>1-6</sub>alkyl optionally substituted by up to three groups independently selected from halogen, cyano, C<sub>1-4</sub>alkoxy optionally substituted by phenyl or C<sub>1-</sub>

4alkoxy, -C(O)C<sub>1-6</sub>alkyl, -C(O)OC<sub>1-6</sub>alkyl, -OC(O)C<sub>1-6</sub>alkyl, -OC(O)OC<sub>1-6</sub>alkyl, -C(O)NR<sup>32</sup>R<sup>33</sup>, -NR<sup>32</sup>R<sup>33</sup> and phenyl optionally substituted by nitro or -C(O)OC<sub>1-6</sub>alkyl,  
-(CH<sub>2</sub>)<sub>w</sub>C<sub>3-7</sub>cycloalkyl,  
-(CH<sub>2</sub>)<sub>w</sub>heterocyclyl,  
-(CH<sub>2</sub>)<sub>w</sub>heteroaryl,  
-(CH<sub>2</sub>)<sub>w</sub>aryl,  
C<sub>3-6</sub>alkenyl, or  
C<sub>3-6</sub>alkynyl;

R<sup>30</sup> is hydrogen, C<sub>1-4</sub>alkyl, C<sub>3-7</sub>cycloalkyl, optionally substituted phenyl or benzyl, acetyl or benzoyl;

R<sup>31</sup> is hydrogen or R<sup>20</sup>, or R<sup>31</sup> and R<sup>19</sup> are linked to form the bivalent radical -O(CH<sub>2</sub>)<sub>2</sub>- or -(CH<sub>2</sub>)<sub>t</sub>-;

R<sup>32</sup> and R<sup>33</sup> are each independently hydrogen or C<sub>1-6</sub>alkyl optionally substituted by phenyl or -C(O)OC<sub>1-6</sub>alkyl, or

R<sup>32</sup> and R<sup>33</sup>, together with the nitrogen atom to which they are bound, form a 5 or 6 membered heterocyclic group optionally containing one additional heteroatom selected from oxygen, nitrogen and sulfur;

X is -U(CH<sub>2</sub>)<sub>v</sub>B-;

U is -N(R<sup>30</sup>)- and B is -O- or -S(O)<sub>z</sub>, or

U is -O- and B is -N(R<sup>30</sup>)- or -O-;

W is -C(R<sup>31</sup>)- or a nitrogen atom;

d is 0 or an integer from 1 to 5;

e is an integer from 2 to 4;

f, g, h, m, p, q, r and s are each independently integers from 0 to 4;

i is an integer from 1 to 6;

j, k, n and z are each independently integers from 0 to 2;

t is 2 or 3;

v is an integer from 1 to 8;

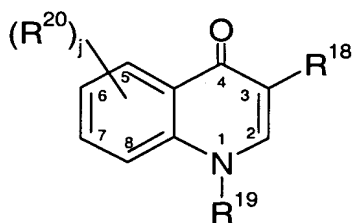
or a pharmaceutically acceptable derivative thereof.

2. (Original): A compound according to claim 1 wherein A is -C(O)- or -N(R<sup>7</sup>)-CH<sub>2</sub>-.

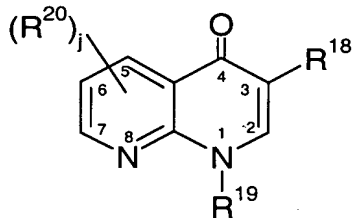
3. (Currently amended): A compound according to claim 1 ~~or claim 2~~  
wherein d is 2.

4. (Currently amended): A compound according to claim 1 ~~any one of the  
preceding claims~~ wherein v is 2.

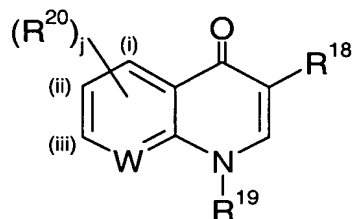
5. (Currently amended): A compound according to claim 1 ~~any one of the  
preceding claims~~ wherein R<sup>11</sup> is a heterocyclic group of the following formula:



or



wherein the heterocyclic is linked in the 6 or 7 position and j, R<sup>18</sup>, R<sup>19</sup> and R<sup>20</sup> are  
as defined in claim 1, or a heterocyclic group of the following formula:



wherein the heterocyclic is linked in the (ii) or (iii) position, W is -C(R<sup>31</sup>)- and R<sup>31</sup>  
and R<sup>19</sup> are linked to form the bivalent radical -(CH<sub>2</sub>)<sub>t</sub>- as defined in claim 1, and j,  
R<sup>18</sup>, R<sup>19</sup> and R<sup>20</sup> are as defined in claim 1.

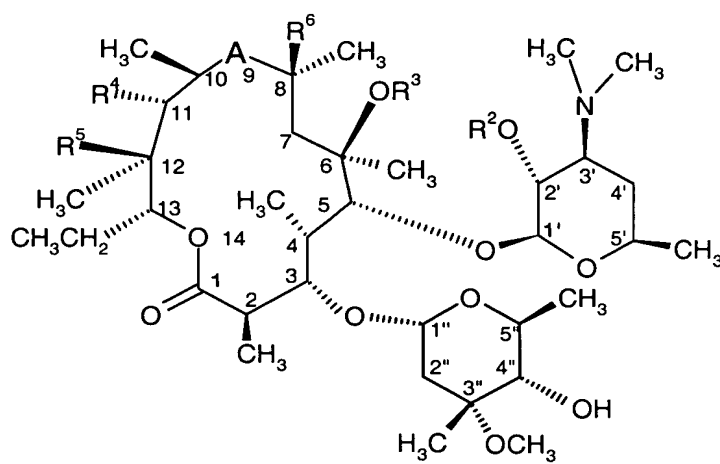
6. (Original): A compound according to claim 1 as defined in any one of Examples 1 to 87, or a pharmaceutically acceptable derivative thereof.

7. (Original): A compound selected from:  
4"-O-{3-[2-(3-carboxy-1-ethyl-4-oxo-1,4-dihydro-6-quinolinylsulfanyl)ethylamino]propionyl}-6-O-methyl-erythromycin A;  
4"-O-{3-[2-(3-carboxy-1-ethyl-4-oxo-1,4-dihydro-6-quinolinylsulfanyl)ethylamino]propionyl}-6-O-methyl-11-desoxy-11-(R)-amino-erythromycin A 11,12-carbamate;  
4"-O-{3-[2-(3-carboxy-1-ethyl-4-oxo-1,4-dihydro-6-quinolinylsulfanyl)ethylamino]propionyl}-azithromycin 11,12-carbonate;  
4"-O-{3-[2-(6-carboxy-7-oxo-2,3-dihydro-1H,7H-pyrido[3,2,1-ij]quinolin-9-yloxy)ethylamino]propionyl}-6-O-methyl-erythromycin A;  
4"-O-{3-[2-(3-carboxy-1-ethyl-4-oxo-1,4-dihydro-7-quinolinyloxy)ethylamino]propionyl}-6-O-methyl-erythromycin A;  
4"-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-6-quinolinylamino)ethoxy]propionyl}-azithromycin;  
4"-O-{3-[2-(3-carboxy-1-cyclopropyl-4-oxo-1,4-dihydro-6-quinolinylamino)ethoxy]propionyl}-azithromycin;  
4"-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-6-quinolinylamino)ethoxy]propionyl}-11-O-methyl-azithromycin;  
4"-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-quinolin-6-yloxy)ethoxy]-propionyl}-azithromycin; and  
4"-O-{3-[2-(3-carboxy-1-cyclopropyl-4-oxo-1,4-dihydro-quinolin-6-yloxy)-ethoxy]-propionyl}-azithromycin;  
4"-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-6-quinolinylamino)ethoxy]propionyl}-azithromycin 11,12-cyclic carbonate;  
4"-O-{3-[2-(3-carboxy-1-cyclopropyl-4-oxo-1,4-dihydro-6-quinolinylamino)ethoxy]propionyl}-11-O-methyl-azithromycin;  
4"-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-quinolin-6-yloxy)-ethoxy]-propionyl}-azithromycin 11,12-carbonate;

4''-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-6-quinolinylamino)ethoxy]propionyl}-6-O-methyl-11-desoxy-11-(R)-amino-erythromycin A 11,12-carbamate;  
 4''-O-{3-[2-(3-carboxy-1-cyclopropyl-4-oxo-1,4-dihydro-quinolin-6-yloxy)-ethoxy]-propionyl}-11-O-methyl-azithromycin;  
 4''-O-{3-[2-(3-carboxy-7-chloro-1-cyclopropyl-4-oxo-1,4-dihydro-quinolin-6-yloxy)ethoxy]propionyl}-6-O-methyl-erythromycin A;  
 4''-O-{3-[2-(3-carboxy-1-cyclopropyl-6-fluoro-8-methoxy-4-oxo-1,4-dihydro-quinolin-7-ylamino)ethoxy]propionyl}-azithromycin;  
 or a pharmaceutically acceptable derivative thereof.

8. (Original): A process for the preparation of a compound as claimed in claim 1 which comprises:

a) reacting a compound of formula (II)



(II)



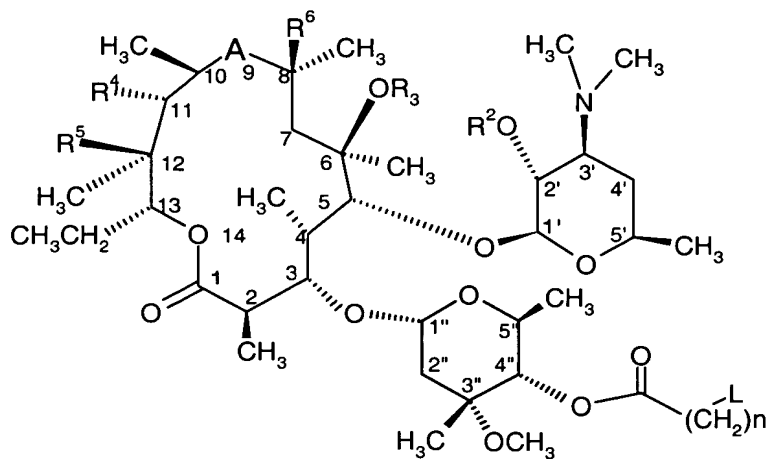
(III)

with a suitable activated derivative of the acid (III), wherein  $\text{X}^a$  and  $\text{R}^{11a}$  are X and  $\text{R}^{11}$  as defined in claim 1 or groups convertible to X and  $\text{R}^{11}$ , to produce a compound of formula (I) wherein d is an integer from 1 to 5;

b) reacting a compound of formula (II), in which the 4'' hydroxy is suitably activated, with a compound of formula  $\text{X}^a\text{R}^{11a}$  (IV), wherein  $\text{R}^{11a}$  is  $\text{R}^{11}$  as defined in claim 1

or a group convertible to  $R^{11}$  and  $X^a$  is  $-U(CH_2)_vB-$  or a group convertible to  $-U(CH_2)_vB-$ , in which U is a group selected from selected from  $-N(R^{30})-$  and  $-O-$ , to produce a compound of formula (I) wherein d is 0 and U is a group selected from  $-N(R^{30})-$  and  $-O-$ ;

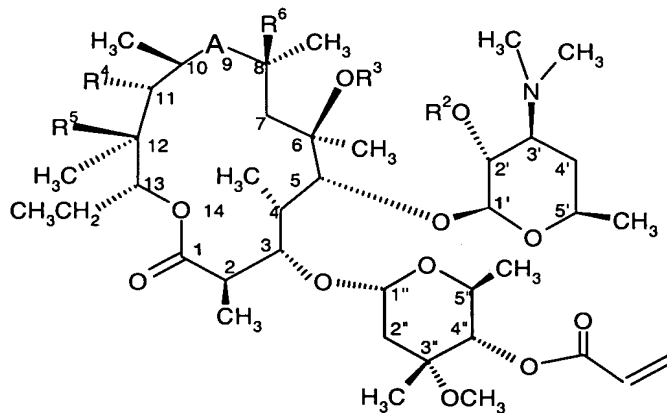
c) reacting a compound of formula (V)



(V)

with a compound of formula  $X^aR^{11a}$  (IV), wherein  $R^{11a}$  is  $R^{11}$  as defined in claim 1 or a group convertible to  $R^{11}$  and  $X^a$  is  $-U(CH_2)_vB-$  or a group convertible to  $-U(CH_2)_vB-$  in which U is  $-N(R^{30})-$ , and L is suitable leaving group, to produce a compound of formula (I) wherein U is  $-N(R^{30})-$ ;

d) reacting a compound of formula (VII), with a compound of formula  $X^aR^{11a}$  (IV),



(VII)



wherein  $R^{11a}$  is  $R^{11}$  as defined in claim 1 or a group convertible to  $R^{11}$ , and  $X^a$  is - $U(CH_2)_vB$ - or a group convertible to - $U(CH_2)_vB$ - in which U is  $N(R^{30})$ -, to produce a compound of formula (I) wherein d is 2 and U is - $N(R^{30})$ -, or

e) converting one compound of formula (I) into another compound of formula (I);

and thereafter, if required, subjecting the resulting compound to one or more of the following operations:

- i) removal of the protecting group  $R^2$ ,
- ii) conversion of  $X^aR^{11a}$  to  $XR^{11}$ ,
- iii) conversion of  $B^aR^{11a}$  to  $BR^{11}$ , and
- iv) conversion of the resultant compound of formula (I) into a pharmaceutically acceptable derivative thereof.

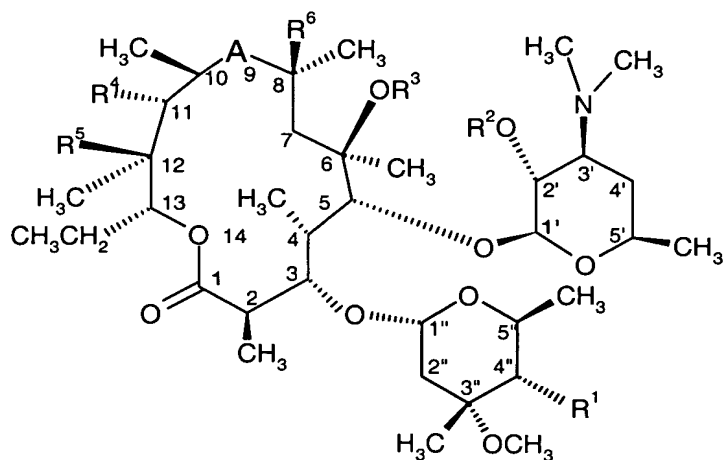
9. (Currently amended): A compound as claimed in claim 1 ~~any one of claims 1 to 7~~ for use in therapy.

Claims 10 and 11 (Cancelled).

12. (Currently amended): A method for the treatment of the human or non-human animal body to combat microbial infection comprising administration to a body in need of such treatment of an effective amount of a compound as claimed in claim 1 ~~any one of claims 1 to 7~~.

13. (Currently amended): A pharmaceutical composition comprising at least one compound as claimed in claim 1 ~~any one of claims 1 to 7~~ in association with a pharmaceutically acceptable excipient, diluent and/or carrier.

14. (Original): A compound of formula (IA)



(IA)

wherein

A is a bivalent radical selected from -C(O)-, -C(O)NH-, -NHC(O)-, -N(R<sup>7</sup>)-CH<sub>2</sub>-, -CH<sub>2</sub>-N(R<sup>7</sup>)-, -CH(NR<sup>8</sup>R<sup>9</sup>)- and -C(=NR<sup>10</sup>)-;

R<sup>1</sup> is -OC(O)(CH<sub>2</sub>)<sub>d</sub>XR<sup>11</sup>;

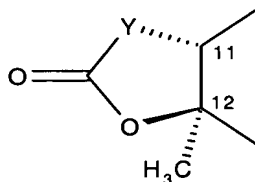
R<sup>2</sup> is hydrogen or a hydroxyl protecting group;

R<sup>3</sup> is hydrogen, C<sub>1-4</sub>alkyl, or C<sub>3-6</sub>alkenyl optionally substituted by 9 to 10 membered fused bicyclic heteroaryl;

R<sup>4</sup> is hydroxy, C<sub>3-6</sub>alkenyloxy optionally substituted by 9 to 10 membered fused bicyclic heteroaryl, or C<sub>1-6</sub>alkoxy optionally substituted by C<sub>1-6</sub>alkoxy or -O(CH<sub>2</sub>)<sub>e</sub>NR<sup>7</sup>R<sup>12</sup>,

R<sup>5</sup> is hydroxy, or

R<sup>4</sup> and R<sup>5</sup> taken together with the intervening atoms form a cyclic group having the following structure:



wherein Y is a bivalent radical selected from -CH<sub>2</sub>-, -CH(CN)-, -O-, -N(R<sup>13</sup>)- and -CH(SR<sup>13</sup>)-;

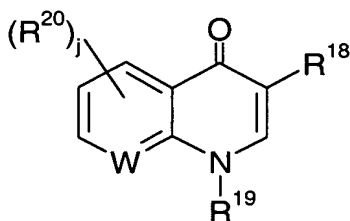
R<sup>6</sup> is hydrogen or fluorine;

R<sup>7</sup> is hydrogen or C<sub>1-6</sub>alkyl;

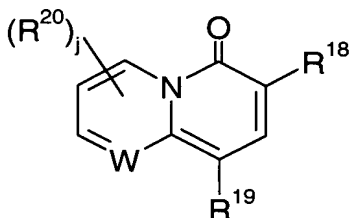
R<sup>8</sup> and R<sup>9</sup> are each independently hydrogen, C<sub>1-6</sub>alkyl, -C(=NR<sup>10</sup>)NR<sup>14</sup>R<sup>15</sup> or -C(O)R<sup>14</sup>, or

R<sup>8</sup> and R<sup>9</sup> together form =CH(CR<sup>14</sup>R<sup>15</sup>)<sub>f</sub>aryl, =CH(CR<sup>14</sup>R<sup>15</sup>)<sub>f</sub>heterocyclyl, =CR<sup>14</sup>R<sup>15</sup> or =C(R<sup>14</sup>)C(O)OR<sup>14</sup>, wherein the alkyl, aryl and heterocyclyl groups are optionally substituted by up to three groups independently selected from R<sup>16</sup>;  
R<sup>10</sup> is -OR<sup>17</sup>, C<sub>1-6</sub>alkyl, -(CH<sub>2</sub>)<sub>g</sub>aryl, -(CH<sub>2</sub>)<sub>g</sub>heterocyclyl or -(CH<sub>2</sub>)<sub>h</sub>O(CH<sub>2</sub>)<sub>i</sub>OR<sup>7</sup>, wherein each R<sup>10</sup> group is optionally substituted by up to three groups independently selected from R<sup>16</sup>;

R<sup>11</sup> is a heterocyclic group having the following structure:



or



R<sup>12</sup> is hydrogen or C<sub>1-6</sub>alkyl;

R<sup>13</sup> is hydrogen or C<sub>1-4</sub>alkyl substituted by a group selected from optionally substituted phenyl, optionally substituted 5 or 6 membered heteroaryl and optionally substituted 9 to 10 membered fused bicyclic heteroaryl;

R<sup>14</sup> and R<sup>15</sup> are each independently hydrogen or C<sub>1-6</sub>alkyl;

R<sup>16</sup> is halogen, cyano, nitro, trifluoromethyl, azido, -C(O)R<sup>21</sup>, -C(O)OR<sup>21</sup>, -OC(O)R<sup>21</sup>, -OC(O)OR<sup>21</sup>, -NR<sup>22</sup>C(O)R<sup>23</sup>, -C(O)NR<sup>22</sup>R<sup>23</sup>, -NR<sup>22</sup>R<sup>23</sup>, hydroxy, C<sub>1-6</sub>alkyl, -S(O)<sub>k</sub>C<sub>1-6</sub>alkyl, C<sub>1-6</sub>alkoxy, -(CH<sub>2</sub>)<sub>m</sub>aryl or -(CH<sub>2</sub>)<sub>m</sub>heteroaryl, wherein the alkoxy group is optionally substituted by up to three groups independently selected from -NR<sup>14</sup>R<sup>15</sup>, halogen and -OR<sup>14</sup>, and the aryl and heteroaryl groups are

optionally substituted by up to five groups independently selected from halogen, cyano, nitro, trifluoromethyl, azido,  $-\text{C}(\text{O})\text{R}^{24}$ ,  $-\text{C}(\text{O})\text{OR}^{24}$ ,  $-\text{OC}(\text{O})\text{OR}^{24}$ ,  $-\text{NR}^{25}\text{C}(\text{O})\text{R}^{26}$ ,  $-\text{C}(\text{O})\text{NR}^{25}\text{R}^{26}$ ,  $-\text{NR}^{25}\text{R}^{26}$ , hydroxy,  $\text{C}_{1-6}$ alkyl and  $\text{C}_{1-6}$ alkoxy;  $\text{R}^{17}$  is hydrogen,  $\text{C}_{1-6}$ alkyl,  $\text{C}_{3-7}$ cycloalkyl,  $\text{C}_{3-6}$ alkenyl or a 5 or 6 membered heterocyclic group, wherein the alkyl, cycloalkyl, alkenyl and heterocyclic groups are optionally substituted by up to three substituents independently selected from optionally substituted 5 or 6 membered heterocyclic group, optionally substituted 5 or 6 membered heteroaryl,  $-\text{OR}^{27}$ ,  $-\text{S}(\text{O})_n\text{R}^{27}$ ,  $-\text{NR}^{27}\text{R}^{28}$ ,  $-\text{CONR}^{27}\text{R}^{28}$ , halogen and cyano;

$\text{R}^{18}$  is hydrogen,  $-\text{C}(\text{O})\text{OR}^{29}$ ,  $-\text{C}(\text{O})\text{NHR}^{29}$  or  $-\text{C}(\text{O})\text{CH}_2\text{NO}_2$ ;

$\text{R}^{19}$  is hydrogen,  $\text{C}_{1-4}$ alkyl optionally substituted by hydroxy or  $\text{C}_{1-4}$ alkoxy,  $\text{C}_{3-7}$ cycloalkyl, or optionally substituted phenyl or benzyl;

$\text{R}^{20}$  is halogen,  $\text{C}_{1-4}$ alkyl,  $\text{C}_{1-4}$ thioalkyl,  $\text{C}_{1-4}$ alkoxy,  $-\text{NH}_2$ ,  $-\text{NH}(\text{C}_{1-4}\text{alkyl})$  or  $-\text{N}(\text{C}_{1-4}\text{alkyl})_2$ ;

$\text{R}^{21}$  is hydrogen,  $\text{C}_{1-10}$ alkyl,  $-(\text{CH}_2)_p\text{aryl}$  or  $-(\text{CH}_2)_p\text{heteroaryl}$ ;

$\text{R}^{22}$  and  $\text{R}^{23}$  are each independently hydrogen,  $-\text{OR}^{14}$ ,  $\text{C}_{1-6}$ alkyl,  $-(\text{CH}_2)_q\text{aryl}$  or  $-(\text{CH}_2)_q\text{heterocyclyl}$ ;

$\text{R}^{24}$  is hydrogen,  $\text{C}_{1-10}$ alkyl,  $-(\text{CH}_2)_r\text{aryl}$  or  $-(\text{CH}_2)_r\text{heteroaryl}$ ;

$\text{R}^{25}$  and  $\text{R}^{26}$  are each independently hydrogen,  $-\text{OR}^{14}$ ,  $\text{C}_{1-6}$ alkyl,  $-(\text{CH}_2)_s\text{aryl}$  or  $-(\text{CH}_2)_s\text{heterocyclyl}$ ;

$\text{R}^{27}$  and  $\text{R}^{28}$  are each independently hydrogen,  $\text{C}_{1-4}$ alkyl or  $\text{C}_{1-4}$ alkoxy $\text{C}_{1-4}$ alkyl;

$\text{R}^{29}$  is hydrogen or  $\text{C}_{1-6}$ alkyl optionally substituted by up to three groups independently selected from halogen,  $\text{C}_{1-4}$ alkoxy,  $-\text{OC}(\text{O})\text{C}_{1-6}$ alkyl and  $-\text{OC}(\text{O})\text{OC}_{1-6}$ alkyl;

$\text{R}^{30}$  is hydrogen,  $\text{C}_{1-4}$ alkyl,  $\text{C}_{3-7}$ cycloalkyl, optionally substituted phenyl or benzyl, acetyl or benzoyl;

$\text{R}^{31}$  is hydrogen or  $\text{R}^{20}$ , or  $\text{R}^{31}$  and  $\text{R}^{19}$  are linked to form the bivalent radical  $-\text{O}(\text{CH}_2)_2-$  or  $-(\text{CH}_2)_t-$ ;

X is  $-\text{U}(\text{CH}_2)_v\text{B}-$ ;

U is  $-\text{N}(\text{R}^{30})-$  and B is  $-\text{O}-$  or  $-\text{S}(\text{O})_z$ , or

U is  $-\text{O}-$  and B is  $-\text{N}(\text{R}^{30})-$  or  $-\text{O}-$ ;

W is  $-\text{C}(\text{R}^{31})-$  or a nitrogen atom;

d is 0 or an integer from 1 to 5;

e is an integer from 2 to 4;

f, g, h, m, p, q, r and s are each independently integers from 0 to 4;

i is an integer from 1 to 6;

j, k, n and z are each independently integers from 0 to 2;

t is 2 or 3;

v is an integer from 2 to 8;

or a pharmaceutically acceptable derivative thereof.